

control agents into a new environment, it is important to consider the potential for unintended non-target effects such as host-range expansion to native or beneficial species. Accordingly, host specificity testing of *T. japonicus* has been carried out under containment conditions in Europe. Developmental suitability of non-target host species for *T. japonicus* was demonstrated in no-choice tests by successful offspring emergence from 11 of 13 non-target species tested. Whereas most non-target species were less accepted than *H. halys*, four native species, *Palomena prasina* (L.), *Rhaphigaster nebulosa* (PODA), *Pentatoma rufipes* (L.), and *Arma custos* (F.), were accepted at numbers comparable to the target host. As laboratory risk assessment studies for *T. japonicus* in Europe were underway, adventive populations of *T. japonicus* were discovered in Switzerland, Italy and Germany. Following the unintentional introduction, the ecological host range of *T. japonicus* in the invaded regions in Switzerland was investigated by exposing sentinel egg masses of *H. halys* and native non-target species. Egg masses of *P. prasina* and *P. rufipes* exposed on trees were regularly parasitized by *T. japonicus*, whereas species feeding on weeds were not attacked at all. Since *P. rufipes* starts laying eggs in late August when *T. japonicus* populations are highest, it was the most frequently parasitized non-target species. Ongoing life table studies in Europe may help to understand if the arrival of *T. japonicus* has any negative consequences for *P. rufipes* populations.

Application of pupal parasitoids for the biological control of *Drosophila suzukii* (Diptera: Drosophilidae) in berry fruit production – ParaDrosu

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The invasive spotted wing drosophila (*Drosophila suzukii*) has become a major pest in protected berry fruit production in Europe. This is due to the development of several generations per year and the capability of females to infest undamaged soft-skinned fruits of various wild and cultivated host plants. Insecticides are often inefficient and can leave residues due to the infestation of ripening or ripe fruit, why applications are close to harvest. Exclusion netting works well but is cost intensive and sometimes not sufficient to control emerging populations. Luckily, the native pupal parasitoids *Trichopria drosophilae* (Hymenoptera: Diapriidae) and *Pachycrepoideus vindemiae* (Hymenoptera: Pteromalidae) have been found to successfully parasitize *D. suzukii* and thus have a great potential as biological

control agents that may supplement current control measures. The research project “ParaDrosu” (2021-2024) aims at developing an innovative biological management strategy based on the release of these pupal parasitoids. Aspects investigated include successful mass rearing of parasitoids, which requires suitable hosts, the right climatic conditions and diets for the adults. Moreover, the rearing system must be efficient as well as economically viable. Within the project, parasitoid populations from different areas in Germany will be collected and tested for their performance with the aim to introduce these populations into the existing rearing stock to maintain parasitoid quality. Performance under different climatic conditions was tested and optimal storage conditions were defined. An appropriate parasitoid application technique ensuring both, optimal protection during transport and release and sufficient dispersal in the crop will be developed. Furthermore, the best release times, intervals and parasitoid numbers will be determined. Relevant plant protection products are tested for negative side effects on the parasitoids to define possible incompatibilities as well as suitable timing for integrated pest management strategies. Semi-field and field trials are conducted in Southern Germany to examine the parasitoids’ efficiency in controlling *D. suzukii* in berry fruit cultivation. Results from the described research project should lead to defining mass production technology as well as develop detailed instructions for successful use to control *D. suzukii* in protected berry fruit cultivation under Middle European climatic conditions.

The project “ParaDrosu” – Biological Control of *Drosophila suzukii* by application of native pupal parasitoids – a closer look

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Drosophila suzukii Matsumura (Diptera: Drosophilidae) is an invasive pest of fruit and berries. The attack of undamaged ripening fruit is a major challenge for pest control and effective means of biological control to manage *D. suzukii* in Germany do not exist yet. In its native range, *D. suzukii* is attacked by different Hymenoptera, such as the cosmopolitan pupal parasitoids *Trichopria drosophilae* Perkins (Diapriidae) and *Pachycrepoideus vindemniae* Rondani (Pteromalidae). European populations of both species can successfully parasitize *D. suzukii*. Prior to application of parasitoids on a commercial scale, a suitable application density